REMARKS

Applicant submits this Response in reply to the Official Action dated January 21, 2009. Applicant believes that the Response is fully responsive to the Official Action for at least the reasons set forth herein.

Claims 2-8 and 12-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mege et al., U.S. Pat. Pub. 2001/0005406 (hereinafter "Mege") in view of Critchlow, U.S. Patent No. 5,276,706. Mege was previously cited in a rejection dated August 6, 2008.

Applicant respectfully disagrees with the rejection and traverses with at least the following analysis.

At the onset, Applicant notes that the rejection is inconsistent with the prior rejection. Notably, in the Official Action dated August 6, 2008, the Examiner admitted that "Mege in view of Brunner et al (previously cited) does not disclose **wherein the training sequences include a ninth training sequence associated with dummy bursts**, the step of using training sequences and correlation peaks for multi-path compensation and wherein channel estimation of the data sequences are used for multi-path compensation (emphasis added)." *See* Allowable subject matter.

However, the Examiner now inconsistently asserts that Mege teaches dummy bursts and the training sequences including eight training sequences associated with data bursts and a ninth training sequence associated with dummy bursts. *See* page 3 of the outstanding Official Action.

Applicant agrees with the Examiner's prior Admissions. Mege fails to teach the claim limitations.

Applicant submits that the cited references, whether taken alone or in any proper combination, fail to teach or suggest each and every limitation of the claims. For example, claim

23 recites, *inter alia*, wherein the sequences include one or more training sequences, synchronization signals, frequency correction bursts and dummy bursts and the training sequences include eight training sequences associated with data bursts and a ninth training sequence associated with dummy bursts. Independent claim 20 recites, *inter alia*, identifying the locations of one or more training sequences within the signal from the frame timing, the one or more training sequences including eight training sequences associated with data bursts and a ninth training sequence associated with dummy burst.

These features are not obvious in view of the cited references. Applicant submits that a person of ordinary skill in the art would not combine the references. While both references appear to mention phase or frequency offsets, the method for calculating or obtaining the offsets and the subsequent use of the results are fundamentally different. One of ordinary skill in the art would not look to the teaching of a phase offset which is discussed with respect to a first application in the field of telecommunications and apply the teaching to another different application.

Pro arguendo, even if there was a motivation to combine; the combination fails to teach all of the limitations of the claims.

The cited references are silent as to using a dummy burst in the training sequence. In fact, the references fail to even mention a training sequence or a dummy burst.

Notably, the claimed invention uses specific portions of the transmitted signal to correct for offset or errors. These portions of the signal include a training sequence, a synchronization (sync) signal and a dummy signal. Such a *prior* knowledge may be obtained from databases or look-up tables of characteristics of the signals that are published as standards. Information derived from training sequences enables the structure of a received signal to be deduced.

In conventional systems, bursts containing no data are filled with a `dummy` code and are not subsequently processed by conventional receivers. However, the claimed invention uses all bursts, including **dummy signals**, to regenerate a high quality reference signal which is a very close replica of what was transmitted, because the vast majority of the received signal can be processed to estimate the mean beat frequency and residual phase shifts on a burst-by-burst basis.

At best, both Mege and Critchlow teach using a sync signal, which is only a small portion of the received signal.

Mege teaches a transmitter which outputs a radio signal formed from a first baseband signal having a synchronization signal. The receiver derives a second baseband signal from the received radio signal, detects the synchronization signal in the second baseband signal in order to calculate synchronization parameters and parameters for estimating the transmission channel. The receiver uses theses parameters to demodulate another portion of the second baseband signal and extract the transmitted information. The synchronization signal contains a synchronization pattern selected by the transmitter based upon the signal information to be supplied to the receiver. The receiver searches several patterns in the second baseband signal in order to obtain the signaling information on the detected pattern.

However, sync signal is only a portion of a known signal pattern. In the claimed invention, the sync signal **is used in combination with the training pattern and the dummy signal**. Dedicated synchronization (`sync`) sequences are initially used to establish frame timing data. Frame timing and other necessary signal structure information can then be established.

Additionally, neither reference suggests using the dummy signals in a training sequence.

Furthermore, Mege fails to teach that the training sequences include ***eight training sequences associated with data bursts*** and a ***ninth training sequence associated with dummy bursts.***

At best, Mege teaches that the synchronization sequence generater 5 is arranged to insert **two** synchronization patterns per burst. *See* paragraph 0092. For example, table 1 illustrates that each pattern can be a sequence of six binary bits. Mege further notes that "[s]ome **frames** may contain a relatively long synchronisation sequence (typically several tens of symbols) enabling the receiver to acquire an initial synchronisation with the transmitter. Other frames transmitted more frequently may contain shorter synchronisation sequences (for example less than 20 symbols), enabling the receiver to refine and track the synchronisation." *See* paragraph 0036.

Therefore, Mege does not teach or suggest that the training sequences include eight sequences. Furthermore, Mege does not teach adding the dummy signal to the training sequence as the ninth sequence. Critchlow fails to cure the above-identified deficiencies.

Furthermore, the cited combination fails to teach estimating a mean beat frequency at the locations of the sequence.

Notably, the Examiner cites Critchlow as a teaching of estimating the mean beat frequency. At best Critchlow teaches using a fixed frequency offset.

Critchlow teaches a system/method for frequency acquisition by a mobile device in a cellular network. Data for a portion of a frame is sampled. The synchronization pattern is rotated by a pattern rotator to simulate fixed frequency offset. The known synchronization pattern is correlated with the sampled data by a correlator for a number of phase advances

corresponding to the simulated fixed frequency offset. The receiver's voltage is controlled to reduce the offset based upon an interpolation of the peak outputs of the correlator. *See* Abstract

Critchlow in no way teaches estimating a mean beat frequency. In stark contrast, in the claimed invention, a mean beat frequency in the training sequence in each burst is estimated by estimating the mean change in phase shift between successive bursts over the signal span of interest. The estimate of the mean beat frequency is supplied to database.

Mege also fails to teach estimating the mean beat frequency.

Accordingly, Applicant respectfully submits that independent claims 20 and 23 are patentable over the cited references; the references fail to teach all of the limitations of the claims.

Claims 2-8, 12-19, 21 and 22 are patentable over the cited references based at least upon the above-identified analysis and in view of their dependency, whether directly or indirectly, from claims 20 and 23.

Applicant submits that claims 7, 8, 12, 13, 21 and 22 are further patentable over the cited references based at least upon the following additional reasons.

As noted above, in the Official Action dated August 6, 2008, the Examiner admitted that Mege failed to teach certain features of the claimed invention, i.e., step of using training sequences and correlation peaks for multi-path compensation and wherein channel estimation of the data sequences are used for multi-path compensation. Applicant agrees with this prior Admission.

Mege fails to teach these limitations, which are recited in claims 12, 13, 21 and 22. Notably, Mege does not even mention multi-path compensation. In fact, the sections identified

in the instant Official Action do not address multi-path compensation. Paragraphs 0084-0085 are directed to detecting the synchronization signal. Critchlow fails to use this deficiency.

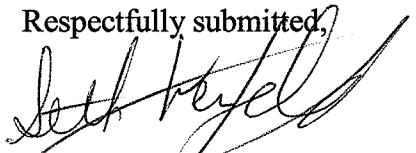
Additionally, as noted above, Mege and Critchlow fail to teach the claimed estimation of the mean beat frequency. Therefore, the references cannot teach removing the estimated mean beat frequency from the signal and storing the mean beat frequency in a database, as recited in claim 7 or estimating residual phase shift of the signal and storing the estimated residual phase shift of the signal in the database, as recited in claim 8. The references do not teach estimating the residual phase shift. Additionally, the references do not even teach a database for storing the estimated mean beat frequency or residual frequency.

Accordingly, Applicant respectfully submits that all of the pending claims are patentable over the cited references.

Based upon the foregoing, Applicant respectfully requests the Examiner to withdraw the rejection of claims 2-8 and 12-23 pursuant to 35 U.S.C. § 103(a).

In view of the above, it is respectfully submitted that all of the claims in the application contain patentable subject matter and a Notice of Allowance is respectfully solicited. Should the Examiner believe that an interview would expedite prosecution of this matter, she is kindly requested to contact the undersigned.

Respectfully submitted,



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